

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Stephen Gratton on 10/9/08.

The application has been amended as follows:

Claim 1 now reads:

A compact, hydrogen generator comprising:

a shell having an inlet port, an outlet port and a conduit between the inlet port and the outlet port having a diameter;

a reformer in the conduit adapted to convert a fuel into a reformat comprising hydrogen and carbon oxides;

a shift reactor in the conduit downstream of the reformer spaced by a distance less than about three times the diameter having at least one catalyst stage adapted to convert carbon monoxide in the reformat to carbon dioxide and hydrogen;

a heat exchanger/distributor in the conduit adapted to cool and inject steam into the reformat comprising:

(a) an indirect heat exchanger comprising a coiled tube in the conduit adapted to receive liquid water, to vaporize the liquid water to steam, and to cool the reformat in the conduit,

(b) a separator comprising a riser entirely within the conduit attached to the coiled tube adapted to receive steam from the coiled tube and to remove substantially all liquid water therefrom, [[and]]

(c) a steam distributor attached to the riser having an opening in fluid communication with the riser adapted to pass steam into the conduit[[.]], and

(d) a plurality of steam distributors comprising arms attached to the riser.

Claim 4 now reads:

The hydrogen generator of claim 1 wherein the [[heat exchanger/distributor comprises a]] plurality of steam distributors on the riser are in fluid communication with the riser.

Claim 5 is cancelled.

Claim 22 is cancelled.

Claim 23 is cancelled.

Claim 24 is cancelled.

Claim 25 is cancelled.

2. The following is an examiner's statement of reasons for allowance: The closest available prior art to applicant's invention is Shinohara (US 4,008,692. Shinohara discloses multiple heat exchanger/distributors capable of vaporizing steam and reforming fuel within a conduit. Shinohara does not disclose a shift reactor, but motivation is found in the reference to combine it with the previously cited Bentley (US 7,066,973 B1) reference. What is not found in Shinohara nor in any other prior art of record is to form the riser of Shinohara entirely within the conduit while comprising steam distribution arms. This claimed language teaches away from Shinohara as even if the riser **30** of Shinohara was formed within the conduit, its configuration would prevent it from steam distribution arms in accordance with riser separation means.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IMRAN AKRAM whose telephone number is (571)270-3241. The examiner can normally be reached on 10-7 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IA

/Alexa D. Neckel/  
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